MODIS Technical Team Meeting
Thursday, November 22, 2000
3:00-4:30 PM

Vince Salomonson chaired the meeting. Present were Bill Barnes, Mike Roberto, Dorothy Hall, Skip Reber, Bruce Ramsay, Bob Murphy, Ed Masuoka, Steve Platnick, Steve Kempler, Chris Justice, Eric Vermote, Wayne Esaias, and Sol Broder, with David Herring taking the minutes.

1.0 Schedule of Upcoming events

· PORSEC 2000 Goa, India	December 5-8
· AGU Fall Meeting San Francisco, CA	December 15-19
· MCST Meeting Columbia Sheraton Hotel	January 22, 2001 (afternoon)
· Land Validation Meeting Columbia Sheraton Hotel	January 22-23, 2001
· Ocean Group Meeting Columbia Sheraton Hotel	January 23, 2001
· Atmosphere Group Meeting GSFC (Bldg. 33, H114)	January 23, 2001
· MODIS Science Team Meeting Columbia Sheraton Hotel	January 24 - 26, 2001
· EOS Investigator Working Group meeting Ft. Lauderdale, Florida	January 30 - February 1, 2001
· SWGD Data Distribution Workshop	February 1, 2001 (at the IWG)

2.0 Meeting Minutes

2.1 Instrument Update

Roberto reported that FM-1 (Aqua MODIS) is still awaiting thermal vacuum testing. PFM (Terra MODIS) B-side electronics have produced some ADC improvements over A-side. Salomonson commented that band 20 looks about the same, and Murphy reported that bands 31 and 32 look conclusively better. However, analysis is needed to quantify

the effects. Murphy also reported that there are no dead detectors on Band 21, and that the amount of “out of family” behavior is comparable to Side A for that band.

Salomonson showed a viewgraph summarizing areas of study for improvement of Level 1B product. These areas were listed:

- Incomplete knowledge of sensor response across scan, including RVS differences,
- Optical cross talk from band 31 into bands 32-36,
- Electronic cross talk among bands 5-7 and 20-26,
- Non-uniform digital count bin-fill factors (i.e., bin-width), particularly for bands 31 and 36,
- Non-uniform, channel-to-channel response within scan.

Salomonson said he has three charts showing geolocation performance, and believes that we are on the way toward reaching the goal of locating 1km pixels to within plus or minus 100m at 2 sigma, but that we aren't there yet. He expects that we will reach the goal by end of year. Salomonson asked that Robert Wolfe update the three charts for the presentation to Jack Kaye at NASA HQ on 12/1/00.

2.2 GDAAC Update

Kempler reported that they had processed L1 data until the new L1 LUT’s were installed. Things seemed to run well until the system reached PGE02. At this point, processing slowed down to a crawl, and they lost about 3 or 4 days. Also, there were taking data off tapes, which slowed access to data. They need to review drive configurations for processing and reprocessing.

Some unrecoverable data losses have occurred: day 287, 2 hours; day 300, 10 hours; day 301, 15 hours. That is 27 hours total. Roberto reported this was associated with the spacecraft formatter going down.

Kempler expressed concern about the possibility of holding back data, an issue that was discussed at the PI Processing meeting on Tuesday. Murphy fleshed out the discussion from that meeting, saying that the changes to the LUTs have, in many ways, produced a new L1B product. The discipline leads all have concerns about producing Level 2 products with brand new LUTs, but it is probably OK. The PIP group talked about holding back data for about a week because Guenther is not comfortable releasing data publicly until people have had a chance to review it. However, holding back the data could be complicated.

Kempler said that ECS is not built to be able to hold back portions of collections. It can hold back all of it or none of it. The idea is that we should have polished algorithms, which have been refined at SCFs and then put into operational systems. The system is not designed to accommodate algorithms that may or may not work.

Salomonson wondered why the team felt the need to hold back this data now, when we have made changes to LUTs before, including changes for Vdet/Itwk, and did not withhold the data. Murphy replied that we would be in continuous production henceforth, and that the data wouldn't have been quality controlled. Esaias commented that Bruce simply wants people to have time to comment on new LUT's, to ensure there are no major problems. No such problems have been seen yet.

Kempler also said they looked into making the data invisible. It could be there, but not evident from the user interface Web sites. GDAAC could do that by the day after this Technical Team meeting, but the EOS Data Gateway would need two weeks. Inserting caveats wouldn't work, either, because the EDG would need two weeks to insert these as well.

Vermote suggested simply setting the quality flags to "Fail." Masuoka replied that the user wouldn't be sure to see them. However, Murphy concluded that this is our only option. Vermote said that they can set the quality flag in LDOPE for land products. Masuoka said that the DAAC and MODAPS can mark all products as not good quality, or "suspect." The LDOPE or MCST could change the flags for L1B for the whole week at once through a QA update. They could also mark them as "being analyzed."

2.3 SDST Update

Masuoka reported that there's a web site (http://edgrs.gsfc.nasa.gov:8000/soo/edgrs.asp**)** that has statistics on data volume produced, archived, and distributed, and that he had done an analysis on MODIS data that had been produced by MODAPS and ingested at the DAACs. He presented graphs that compared MODIS to other Terra instruments and Landsat with respect to the number of files ingested; MODIS is greatly increasing (see Attachment 1). Masuoka's 2nd chart showed volume in terms of megabytes per month. (See Attachment 2.) MODIS is well over (by 2 times) our baseline for distribution--about 9 terabytes per month.

Kempler commented that 200 GB go to the science team for QA, about 1 TB per week goes to MODAPS for production, and another 200 GB per week goes to external distribution. Murphy said that current public demand is about six or eight percent of their ability to distribute data. In addition, the GDAAC has three requests for all data, all the time, including a request from OrbImage, who wants to sell the products. That request was denied for now because we simply cannot do it at this time. Our policy for the time being will be to deny all such requests.

Masuoka reported that Terry Nakajima wants MODIS data over Japan every day for a month during their APEX experiment. Murphy said they could use direct broadcast data from the two receiving stations in Japan. Masuoka commented that it may be time to look at modifying at modifying L1A or developing a preprocessor to handle packets that have the expedited data flag set.

Salomonson commented that at the last MSR, there was a report of EDOS having problems when they could only store 30 days of data. They have now gone to 90 days and found even that is not enough. The recourse is to put the data in deep archive. Masuoka commented that the data can't go to deep archive until they are processed to L0. He was unaware that EDOS had gone to 90 days.

Justice asked whether we still have returns from DAAC to EDOS. Murphy replied that we have about a 5% rate of repeat requests. Justice reported that the PIP group had discussed the issue of EDOS problems emerging again. Masuoka had spoken with Taylor Hale and Glenn Iona, who said that there is only one PDS outstanding, and that it was an interface issue with GSFC. Masuoka indicated that the 90-day archive is a problem if they are about to run out of tapes, and he will talk with them about that.

2.4 Project Update

HQ Briefing on Data

Justice indicated that he had made a suggestion to Masuoka and Robert Wolfe that they should put together some overheads that show what we want with respect to data system capacity. Instead of just saying that we want 5X processing capacity per MODIS, we should state specifics on what equipment is desired and what performance that equipment would give us. Salomonson said that sounded like a good idea. He would like to spend the first hour of the presentation time we have been allotted answering questions on performance and the last half hour on constraints of the system.

Murphy went through the presentation to give the team an opportunity to comment. The broad outline is to state what MODIS is about and who is on the team. Then, the presentation goes through products from L1 up through the disciplines. Finally, we will answer questions.

Justice suggested that MAST provide CDs of the presentation to give to people at HQ. SEE NEW ACTION ITEM 4.1.

MST Meeting

Salomonson said that he would be sending an email around to team members encouraging them to address science questions in the context of the strategic plans and science management plan of the Earth Science Enterprise.

Other Project Updates

Murphy announced that SBRS won the Visible Infrared Imaging Radiometer Suite (VIRS) competition.

2.5 NOAA/NESDIS Update

The following four paragraphs on the position of NOAA/NESDIS with respect to MODIS operations in NESDIS have been taken in their entirety from a report by Gene Legg, Office of Satellite Data Processing and Distribution (OSDPD), NESDIS, and OSDPD Point of Contact for MODIS Operations in NESDIS. He can be contacted at the following address:

NOAA/NESDIS/OSDPD (E/SP1)
Room 0301, FB4
5200 Auth Rd.
Suitland, MD 20746-4304
PH: (301) 457-5165
FAX: (301) 457-5199
Gene.Legg@noaa.gov

Bandwidth does not currently exist to send data regularly from NASA/GSFC to NOAA/Federal Building 4 (FB4) in Suitland, MD, nor is there enough bandwidth to send MODIS data to the NOAA Science Center (NSC) in Camp Springs, MD. Seyed Hosseini, OSDPD, is pursuing an additional 10 Mbps Fiber Distributed Data Interface (FDDI) Network Services (FNS) connection with NOAA procurement, but has been told that they are using Verizon. We understand that there are several other FNS providers, but we do not know the ability of NOAA procurement to utilize them. This issue is being tracked. Only sample data sets, not routine production data sets, will be sent to FB4 and NSC. OSDPD has no alternate plans to route MODIS data to NSC. The transmission of routine production data sets are dependent upon the installation of a fiber connection between GSFC - FB4 - NSC. This is an active submission to the Office of High Performance Computing and Communications (HPCC) in NOAA for funding. Implementation is unknown, but complicated by the lack of available fiber, even with funding. OSDPD has no capability to create a CD or other output media on the processing system at GSFC.

There are no plans to provide routine, operational MODIS products until after the Satellite Products and Services Review Board (SPSRB), which includes NASA participation, has given approval. Plans previously mentioned are not supported by OSDPD capabilities nor the completion of the NASA Cal/Val Program. NOAA has agreed with NASA to involve NASA in our MODIS approval process via the SPSRB and its Product Oversight Panels, and to keep all NOAA produced products internal until the review has been completed. Kent Hughes, Oceanic Research and Applications Division, Office of Research and Applications (ORA), is proposing to take the NASA code and develop coastal specific algorithms for NOAA applications. This is modeled after NESDIS' SeaWiFS experience where NESDIS produced unique NOAA coastal products. This does not negate our agreement with NASA, and NESDIS wants to involve the MODIS Ocean Discipline Group in this process. OSDPD will not be providing operational products for NOAA-unique algorithms until after the SPSRB, with NASA participation, approves the products.

OSDPD agrees with ORA that it would be prudent to have Dr. Paul Menzel, Senior Scientist and Chief of the Advanced Satellite Products Project, NESDIS, provide a selected set of MODIS snow products from the MODIS Direct Broadcast station at the Cooperative Institute for Meteorological Satellite Studies, University of Wisconsin - Madison, for evaluation during the winter if possible. It makes sense to evaluate the MODIS products internally. With regard to the status of MODIS validation by NOAA/NESDIS, the development of procedures to evaluate and use MODIS snow and ice products has been accomplished under the auspices of the Land Surface Product Oversight Panel (LSPOP) with the full knowledge and support of both the ORA and OSDPD LSPOP co-chairs. The LSPOP is an official arm of and reports to the SPSRB and is carrying out the directions of both Helen Wood, Director, OSDPD, and Dr. Jim Purdom, Director, ORA, with respect to the evaluation, use, and review of both retrospective and near-real-time MODIS products. However, OSDPD has no current plans to provide MODIS products operationally to other agencies such as the National Snow and Ice Data Center (NSIDC).

The OSDPD definition of operational production is the 24x7 provision of MODIS products using approved algorithms. It requires a support staff, nonexistent at the present, as well as redundant processing and communications, also nonexistent. OSDPD has projected that to run 2 MODIS data streams and AIRS operationally would take $1.5 to $2M in upgrades, at least two more full time employees ($200K/year) and diverse communications (planned with the fiber links). OSDPD will begin to evaluate MODIS products using operational personnel as soon as OSDPD has the capability to provide products in a routine manner. OSDPD has no communications path from the system in Goddard. Also, our production code is not robust, and still requires manual intervention. Although, with the completion of the new scheduler, we are much closer. The best estimate is that we are waiting on the fiber connection and completion of our system. Our system should be ready in a few weeks, but the fiber remains an outstanding issue. We have a proposal in HPCC to fund the links between FB4 and GSFC and between FB4 and NSC. It appears to be highly regarded in HPCC, and we should know if it is successful very soon.

3.0 Action Items Carried Forward

3.1 Salomonson: Work with Yoram Kaufman and Skip Reber to produce some metrics from the science community to describe the status of data processing as accurately as possible.

Status: Ongoing.

3.2 MODIS Science Team: Send updates on MODIS metadata terms/valids to Skip Reber (reber@skip.gsfc.nasa.gov). These are terms that enable users to search MODIS data. This is part of a request to the Terra Instrument teams to update metadata terms.

Status: Ongoing. Group needs Reber to clarify, reiterate the request.

3.3 Masuoka: Represent MODIS concerns on data throughput to EDOS.
Status: Ongoing. The Review Committee is now preparing a report articulating the impacts to the community.

3.4 Kempler to provide a hardware upgrade schedule, including direction on processing power.
Status: Ongoing.

3.5 Need discussion between SDST and NOAA on completeness of data and process by which we can get more rapid turn around on snow cover and also perhaps sea surface temperature.
Status: Ongoing.

3.6 Murphy asked disciplines leads to provide final updates to product release table.
Status: Ongoing.

3.7 Discipline leads to meet to resolve the issue of beta release code and science-quality code, and what we need to say about it.
Status: Ongoing.

3.8 Justice to share with discipline leaders, Salomonson, and Murphy viewgraphs of presentation he gave at Sarah Grave's committee meeting.
Status: Ongoing.

3.9 Justice to provide an informal report to Salomonson about what went on at that meeting.
Status: Ongoing.

3.10 Vince to send an email to science team about preparing presentations/posters for the IWG meeting.
Status: Ongoing.

4.0 New Action Items

4.1 Michael Heney to work with Murphy and presentation team to create CDs for HQ.
Status: Closed.